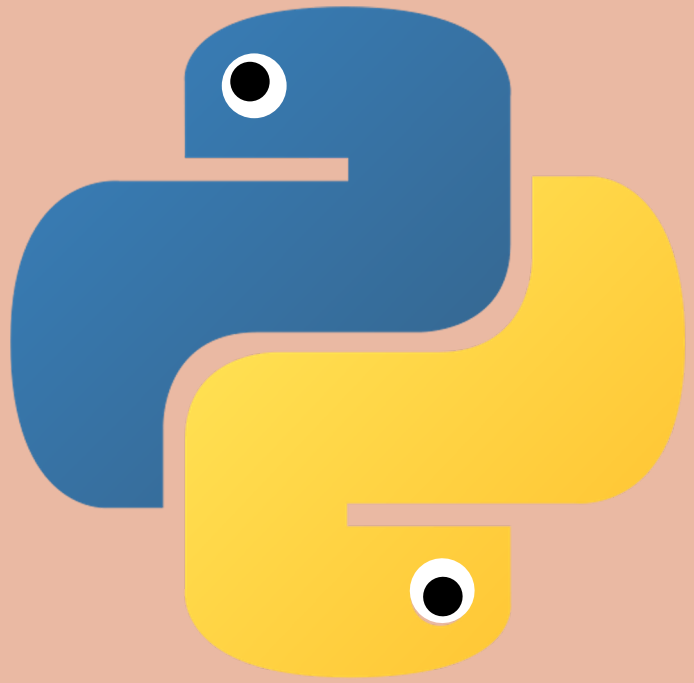
Python Lecture 2



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Goal of this Lecture

- Understand Python Division, Floor Division and Modulo
- Explore Python on the Jupyter.
  a. Variables
  b. Lists
  c. Conditionals
  d. Great Rule of Equality

Division, Floor Division, Modulo

True Division: `/` (decimal division)	Floor Division: `//` (integer division)	Modulo: `%` (remainder)

`>>> 1 / 5`
`0.2`
 	
`>>> 25 / 4`
`6.25`
 	
`>>> 4 / 2`
`2.0`
 	
`>>> 5 / 0`
`ZeroDivisionError`
	`>>> 1 // 5`
	`0`
	
	`>>> 25 // 4`
	`6`
	
	`>>> 4 // 2`
	`2`
	
	`>>> 5 // 0`
	`ZeroDivisionError`
		`>>> 1 % 5`
		`1`
		
		`>>> 25 % 4`
		`1`
		
		`>>> 4 % 2`
		`0`
		
		`>>> 5 % 0`
		`ZeroDivisionError`

Variables

Data Type	Explanation	Example
Integer (Int)	Positive or negative integer	A = 5
Float	Decimal (floating point) number	A = 3.1415926
Boolean (Bool)	True or False	A = True or A = False
List	Ordered List of Value	A = [1, 2, 3]
String (Str)	A List of Characters (text)	A = ‘Marvin the depressed robot’
Dictionary (Dict)	A mapping of keys and values	A = {‘e’:2.718, ‘pi’, 3.141}
None	Nonetype (null or missing value)	A = None

- Variables are containers that store the data we want to keep track of.
- To find the variable type, we use the type() function where the variable is passed in as an input to the function. Our variable type can change dynamically. If I declare A as an integer, I can change it to be a Boolean value in the very next step.

Print Statements and Operations

Operator	Name	Example
+	Addition	A + B
-	Subtraction	A - B
*	Multiplication	A*B
**	Exponentiation	A**B
==	Equal	A == B
!=	Not equal	A!=B
>	Greater Than	A > B
<	Less than	A < B
>=	Greater Than or Equal To	A >= B
<=	Less than Or Equal To	A <= B
and	As a condition, it returns true if both statements are true. If there is one false statement, returns first False statement. If both are True, returns the last True Statement.	A > B and B > C
or	As a condition, it returns true if both statements are true. If there is one false statement, returns first True statement. If both are True, returns the first True Statement.	A > B or B > C
not	If result is True, returns false	not (A < B)

Lists

List Elements	1	2	3
Forward Index	0	1	2
Reverse Index	-3	-2	-1

- A list is a data structure that acts like a container and stores multiple elements. Each element can be of any type, even a list itself.
- Lists are accessed with their index.
- We can also slice lists. Slicing a list creates a copy of part or all of list. The syntax for slicing a list is ‘list[<start index>:<end index>:<step size>].